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## JUNE - 2011 QUARTERLY REPORT

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### ATHENA RESOURCES LIMITED

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### CONTACTS

Mr Ed Edwards  
Managing Director

### PROJECTS

**Byro:** Iron Ore, Nickel-Copper-  
PGE's

**Ashburton:** Gold and Base metals

### SECURITIES

107.0M Shares - AHN  
33.8M Options - AHNO

### SHAREHOLDERS

Mr E Edwards – 8.5%  
Ishine International – 7.8%  
Mr D Kelly – 6.6%  
Hon A Thomson – 3.7%

## HIGHLIGHTS

### BYRO PROJECT – IRON ORE

#### Resource Drilling

- Resource Drilling at FE1 complete

#### CRIMM Metallurgical Report

- Excellent results from CRIMM's Mineralogical Study and Metallurgical Beneficiation Testwork
- Results indicate 94% of the magnetite can be liberated at a relatively coarse grind
- Results indicate a simple processing circuit comprising crushing, grinding and wet low intensity magnetic separation
- Coarse grind of P80-125 micron and two stages of wet low intensity magnetic separation can produce concentrate of >67% Fe grade with Fe recovery of 95% in concentrate mass of 53%

### BYRO PROJECT – BASE METALS

- Diamond Hole at Byro East extended from 350 meters to 500 meters depth due to persistent nickel sulphides. The Sulphides occurred at elevated levels as disseminated pentlandite and millerite with minor copper in a proven fertile intrusion. Assay pending.

## **1. BYRO PROJECT** (Athena Resources 100%)

### **BYRO IRON ORE**

#### **Resource Drilling at FE1.**

During the quarter Athena completed the resource drilling at the Company's highly prospective Byro Iron Ore Project in the Mid-West region of Western Australia. Infill drill intersections support the FE1 Ore Model which now covers an area of over 164,000m<sup>2</sup>.

The 2,893 metre drilling program was designed as an infill program to test the FE1 Prospect to inferred resource status, and comprises of 17 Reverse Circulation drill holes (RC) and 1 PQ Diamond core hole, (Figure 1). Drilling at FE1 now totals 28 RC holes and 1 PQ/NQ diamond core hole. The recommended drill spacing of 100m by 200m grid used in conjunction with detailed geophysical surveys to delineate the margins of mineralization have been exceeded to provide a more than suitable upper data limit for a JORC compliant Inferred Resource, as advised by external consultants. Average drill collar spacing's at FE1 are now inside a 100m by 100m grid advancing the project with a high level of confidence.

Magnetic susceptibility was recorded for all holes drilled throughout the ore body. Average readings of 600-800x<sup>10<sup>-3</sup></sup> and ranging up to 2000x<sup>10<sup>-3</sup></sup> (SI Units), during this campaign. Readings are of similar high value to last season's drilling at FE1. Average grain size is coarse, up to 1.5mm also similar to previous samples from last year. The estimated average true thickness of ore at 60m determined from cross sections last season is supported by drilling and cross sections this season.

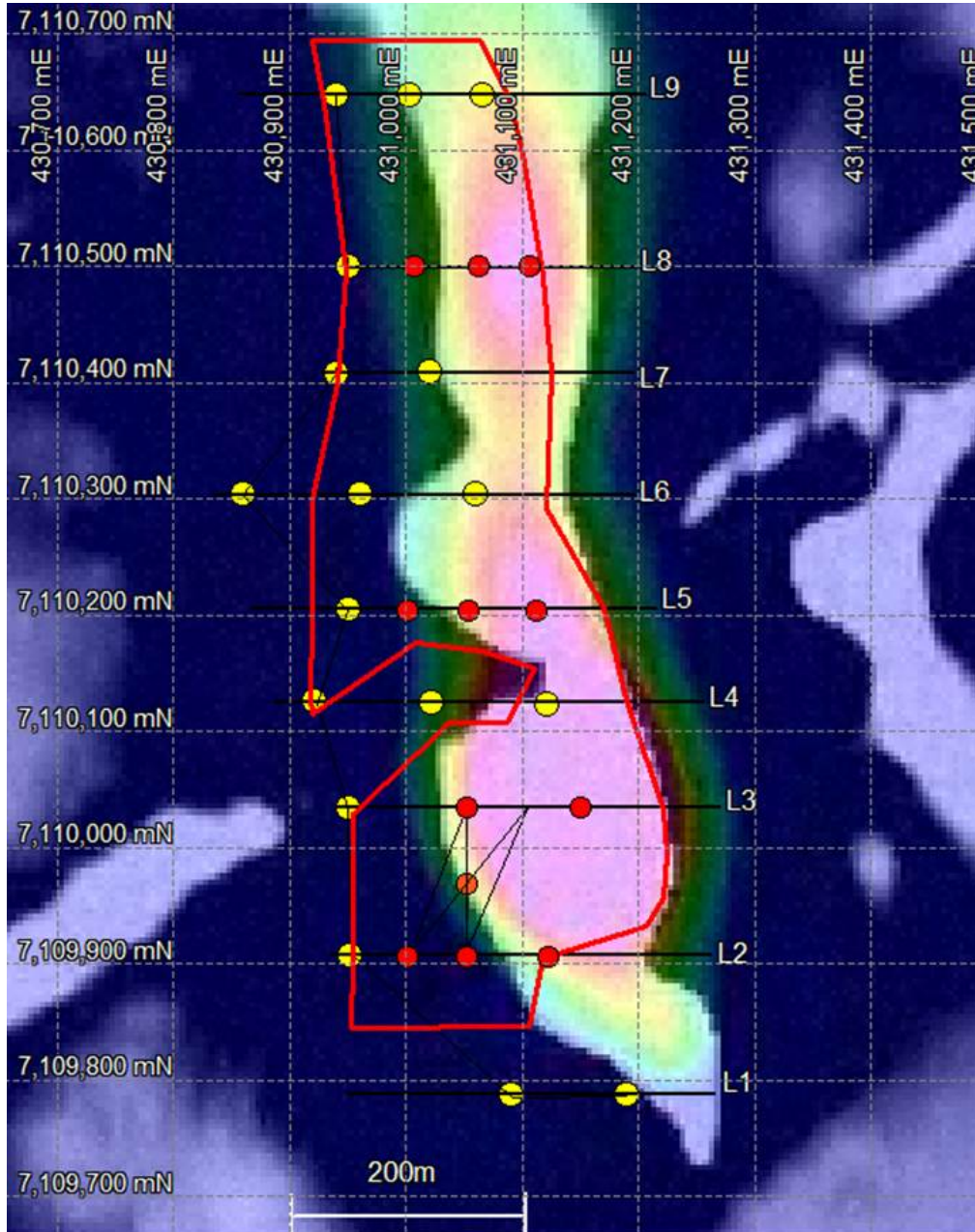
High grade magnetite intersections from RC and diamond drilling include:

#### **Diamond Core Drilling**

AHDH0002

84m magnetite from 72m down hole

Figure 1, FE1 Drill Hole Collar Positions over aeromagnetic anomaly.



- 2011 Diamond Drill Hole  
Sent to China for Metallurgical Test Work
- 2010 RC Drill Hole
- 2011 RC Drill Hole
- Perimeter of Ore Occurrence

## RC Drilling

AHRC0034	80m magnetite from 98m down hole
AHRC0040	72m magnetite from 106m down hole
AHRC0030A	50m magnetite from 130m down hole
AHRC0037	45m magnetite from 82m down hole
AHRC0043	36m magnetite from 93m down hole
AHRC0036	31m magnetite from 130m down hole

Ore intersected in the PQ diameter diamond drill core, (AHDH0002 84m magnetite from 72m down hole) was sent directly to China and to AMMTEC in Australia as part of the beneficiation and metallurgical test work that will form part of the scoping study.

All FE1 RC samples are at the Amdel laboratory in Perth awaiting assay and Davis Tube Recovery work (DTR). All results will be passed on to AMC Consultants for Inferred Resource Assessment.

## **Changsha Research Institute of Mining and Metallurgy (CRIMM) Testwork.**

CRIMM was engaged by Athena in January to undertake beneficiation testing on samples from the Byro magnetite deposit in Western Australia to study its metallurgic features to ensure a scientific basis for decision-making on the development and investment of the Byro Project.

200kg RC Chip samples were delivered to CRIMM in March and the Diamond Core in June 2011. CRIMM then conducted the testing in an empirical manner. The testing was completed in June with the main points as follows:

### **Major Results from Mineralogy Study**

- Process mineralogical research showed that the ore is primary acidic magnetite ore with low phosphorus and sulphur content.
- Iron represents the major recoverable element of the ore with Total Fe content 37.52%. The ore is composed of simple components among which magnetite is the main iron-bearing mineral hosting 92.27% of total iron content.

- The magnetite occurs mainly in disseminated stripes with no significant secondary alteration.
- The size of magnetite crystals is quite variable with the finest being smaller than 0.02mm and the coarsest larger than 2.0mm, with most between 0.15-1.2mm.
- While magnetite is by far the most abundant iron mineral, iron is also reported as Fe in hematite and limonite (2.16%), Fe in silicate (5.04%), Fe in carbonate (0.45%) and Fe in sulphide as pyrite (0.08%).
- The mineralogy indicates at the appropriate grind size and wet low intensity magnetic separation the majority of the magnetite will be recovered, while a percentage of the hematite if attached to magnetite, will also be recovered. The pyrite is not expected to be recovered, while the majority of both the Fe in carbonate and silicate will report to tailings.
- Waste minerals to be rejected through beneficiation include mainly quartz, followed by Al<sub>2</sub>O<sub>3</sub>, CaO and MgO; together they constitute 46.83% of the total ore weight. The content of deleterious components phosphorus and sulphur are fairly low and are not expected to be detrimental to concentrate quality.
- Mineralogy indicates that 94% of the magnetite can be liberated by grinding to 65% passing 200 mesh (75 micron).

### **Major Results from Beneficiation Testwork**

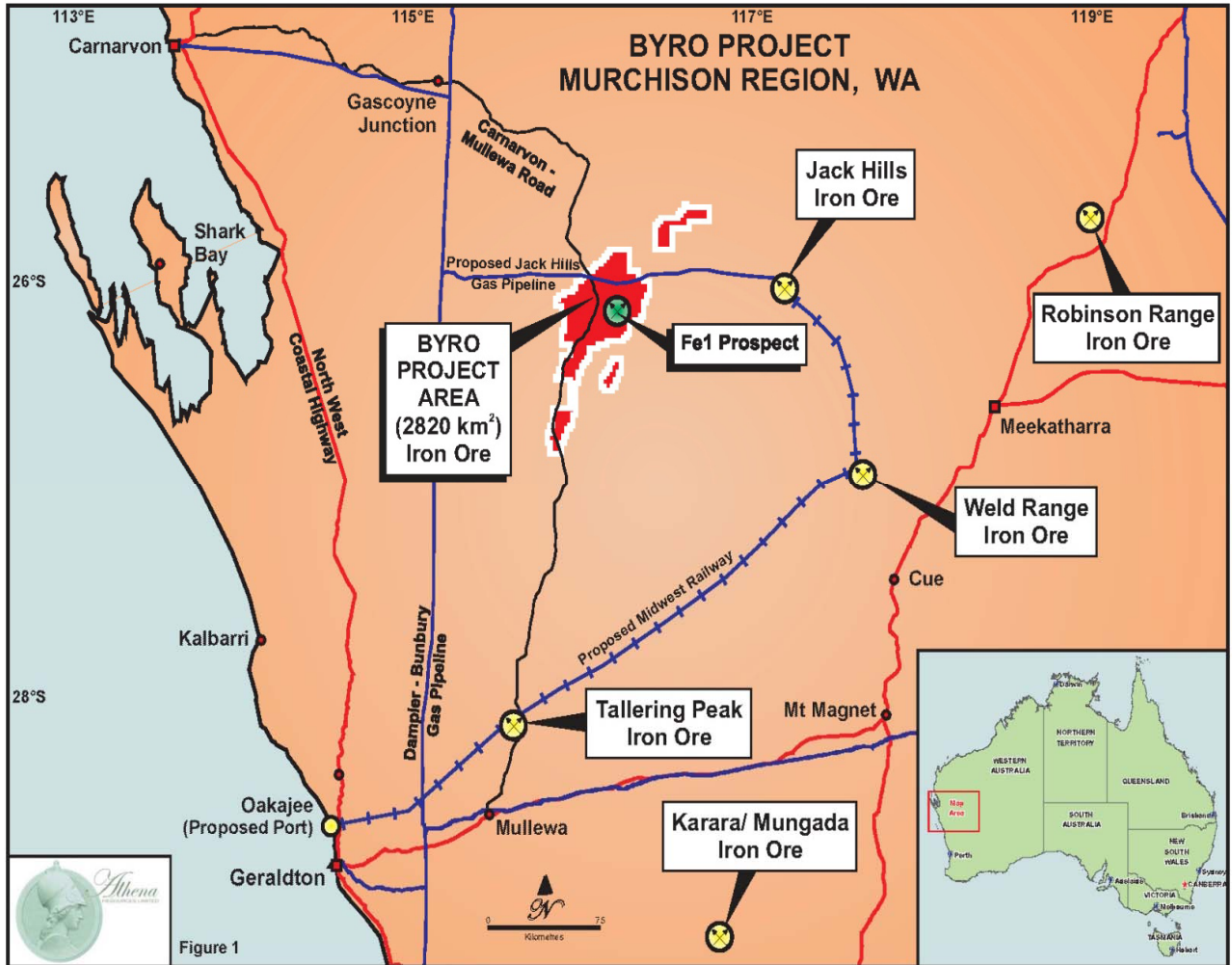
- Substantial test work and analyses showed that the magnetite in the ore cannot be effectively concentrated by dry magnetic separation and coarse tailing discarding, but can be concentrated by milling and wet low intensity magnetic separation.
- The processing flowsheet proposed includes crushing, grinding followed by wet low-intensity wet magnetic separation.
- The wet low intensity magnetic separation includes a primary roughing stage followed by a secondary cleaning stage.
- Beneficiation testwork was carried out over nine grind sizes ranging from 45% passing 200 mesh (75 micron) to 96.5% passing 400 mesh (38 micron) and four magnetic field intensity strengths.
- Beneficiation testwork indicated that excellent results are achieved by grinding to 65% passing 200 mesh (75 micron).

- The following results were achieved at 65% passing 200 mesh (75 micron):
  - Concentrate mass recovered of 49.75% (50.25% rejected to tailings)
  - Total Fe grade of concentrate of 70.31%
  - Total Fe recovery of 94.46%.
- While superior results are achieved by grinding to 65% passing 200 mesh (75 micron), very good results are achieved at the coarser grind size of 45% passing 200 mesh (75 micron).
- The following results were achieved at the coarser grind of 45% passing 200mesh (75 micron):
  - Concentrate mass recovered of 52.52% (47.48% rejected to tailings)
  - Total Fe grade concentrate of 67.31%
  - Total Fe recovery of 94.95%.
- The differences in results from the two grind sizes are marginal, however at the coarser grind size there will be saving in both capital and operating costs. For this reason the beneficiation testwork has recommended a grind size of 45% passing 75 micron. This is equivalent to a P80 of approximately 125 micron.
- A millability test was conducted between the Byro ore and a standard Chinese ore. Byro ore milled very well compared to the Chinese ore and reported a millability coefficient of 2.79 which indicated Byro achieved the target grind size in approximately one third the time required by the Chinese ore.

## **Location**

The FE1 magnetite iron ore located within the Company's Byro Iron Ore Project in the Mid West region of Western Australia will provide a significant boost to the viability of proposed infrastructure in the region including the Oakajee Deep Port and Midwest Rail System, (Figure 2).

**Figure 2**



**BYRO BASE AND PRECIOUS METALS**

The intrusives identified at Moonborough and Byro East are in a tectonic setting of large scale crustal sutures and rifting, broadly comparable to the major Jinchuan, Voisey's Bay and Raglan deposits.

Athena has confirmed the coincidence of undifferentiated mafics, mineralised pyroxenite, gabbros and ultramafic rocks intruding through deeply buried high grade metamorphic country rocks. This derivation is indicative of a mafic intrusive parentage in an extensional environment through feeder conduits incorporating potential assimilation of

country rock. Levels of Ni-Cu and PGE development as determined by assays indicate a fertile system. The Byro tenements are located on the northwestern edge of the Yilgarn Craton, bordering the Carnarvon Basin to the west.

## **BYRO EAST**

- The Byro East intrusive drilling is co-funded by the Western Australian Government – Industry Drilling Program which enabled a diamond drill hole at Byro East. During the quarter the diamond hole drilled in the Second Quarter was extended passed the proposed depth of approx 400m to 500M. The hole was extended due to persistent nickel sulphides. The Sulphides occurred at elevated levels as disseminated pentlandite and millerite with minor copper in a proven fertile intrusion.

The diamond core is now in Perth currently being cut and sent for assay.

The results from drilling completed in the Second Quarter included;

- **AHRC0027; 129.7m @ 0.26% Ni from 20m**
- **AHDH0001; 62.7m @ 0.29 % Ni from 149.7m**
  - Including
  - 0.80m @ 0.33% Ni from 151.4m
  - 1.73m @ 0.31% Ni from 157.4m
  - 4.00m @ 0.31% Ni from 208.4m

This has now added to the prospectivity attributes of the Byro East Intrusive, which include,

- Fertile altered Serpentine Antigorite c/w abundant olivine adcumulate of consistently high MgO (37.3 % < 44.8%).
- Consistent primary Ni sulphide averaging 2736 ppm.
- Anomalous zones of increased sulphur, chrome, nickel, copper and PGE's.
- Upgrade of pentlandite to millerite during serpentinisation.

Athena's exploration of this intrusive body will now advance to indentifying the variation in geochemistry and define possible pulses while exploring for concentrations of sulphides, feeder pipes and potential trap sites through which fertile magma has flowed.

## **2. ASHBURTON PROJECT** (Athena Resources 100%, P08/493 95%, M08/189 90%)

The historic June-Audrey, Bilrose and, Camp and Party workings at Kooline are associated with discrete magnetic anomalies. A number of subtle anomalies that have no apparent surface expression are recognisable on the imaged high resolution aeromagnetic data.

Athena's study of the structures at Lewis's Prospect, the Bilrose and Jane Audrey lead workings has added a new layer to the geophysics, soil sampling and drill testing previously completed. Planning has been carried out on the Ashburton Project in the June Quarter in preparation for site work starting in July.

The work will centre on the gold targets at

- Lewis Prospect where Athena received positive drill results. The best results were **2 metres at 9.47g/t gold** from 77 metres in drill hole AK09RC12 and **1 metre at 4.73g/t gold** from 52 metres in drill hole AK09RC11. These two holes tested the same mineralised quartz vein array on sections 160 metres apart.
- Collins Prospect where Aberfoyle intersected 2 metres at 13.2 g/t gold in RC hole RCST03 at Sunken Treasure and Goldfields intersected 3 metres at 15.6g/t gold in drill hole DKRC06. Other intersections of interest include 5 metres at 2.7 g/t and 2 metres at 3.9 g/t gold.

Athena is also a sponsor in the CSIRO Research into Improved Hydro Geochemical Exploration. This is being conducted in the Northwest Yulgarn region, also covering Ashburton, to add value to under explored areas.

E W Edwards  
Managing Director  
29 July 2011

The technical information relating to Athena's exploration projects was compiled by Mr Liam Kelly an employee of Athena Resources limited. Mr Kelly is a Member of the Australasian Institute of Mining and Metallurgy, and has sufficient relevant experience in the styles of mineralisation and deposit styles under consideration to qualify as a Competent Person as defined in "*The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code, 2004 edition)*". Mr Kelly consents to this inclusion of the information in this report in the context and format in which it appears.